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# HISTORY OF THE EMPLOYMENT OF WOMEN IN THE AMERICAN COTTON MILLS<sup>1</sup>

## PART I

### I. STATISTICS OF EMPLOYMENT. DISPLACEMENT OF WOMEN BY MEN

In a study of women in industry, the history of the cotton manufacture is of fundamental importance. The earliest application of machinery was made in the cotton mills, and they furnish an opportunity of studying the relation of the working woman to the factory system from its origin to the present day. Moreover, the cotton manufacture is the largest, as well as the oldest, of the manufacturing industries which employ large numbers of women.

A discussion of the history of women's work in the mills falls naturally into two divisions:

i. A consideration of the statistics of employment showing the relative number of women and men operatives in the industry at different periods—statistics which should throw light upon such moot points as the questions: Did women, at the time of the taking of the last census, form a larger proportion of the total number of employees than they did in the early years of the century; or have men operatives displaced the women at loom and spindle? Are there as many women employed in the cotton mills now, in proportion to the total number of women in the population as formerly; or has this been a declining industry for women? And these questions obviously lead us into economic history to study the causes that have been at work behind these figures.

<sup>1</sup> Other articles in this series which have appeared in this *Journal* are: "The History of the Industrial Employment of Women in the United States: an Introductory Study," Vol. XIV, pp. 461-502; "Harriet Martineau and the Field of Employment for Women in 1836," Vol. XIV, pp. 614-26; "Women in the Cigar Making Industry: History and Tendencies," Vol. XV, pp. 1-26. The writer wishes to express her obligations to the Carnegie Institution of Washington for assistance in the preparation of these articles.

2. A discussion of the changes in the social aspects of the industry, the character of the employees, their age, nationality, conjugal condition, their average period of service, their hours of labor, the conditions under which they lived and worked; for it is only by reconstructing from the early records a picture of the mill-girl's life in the first half of the century, that an adequate basis is afforded for examining the charge that there has been a debasement and deterioration of the factory population of New England.

The effect of the introduction of the factory system on the employment of women was discussed in an earlier paper in this series,<sup>2</sup> and the evidence there collected should, perhaps, be briefly summarized again as it relates especially to the cotton industry. Women were employed in the first cotton mills in this country; they worked at Beverly, Massachusetts, in 1787, and in 1789-90 for Samuel Slater at Pawtucket, Rhode Island; and Henry Wansey, an English traveler, found them at Hell Gates, New York, in 1794. The history of the transition period, before the machine system was fully developed, shows clearly that there was no initial displacement of men by women when the factory system was established. The power loom was not introduced until 1814, and the early factories were only spinning mills from which the yarn was put out in webs and woven by hand-loom weavers for the factory or sold in country stores for purposes of household manufacture. The women and girls in these factories were doing what had always been "women's work." They had taken over no new employment; but the manner of carrying on the old had changed. Later, as the fly shuttle came into use before the introduction of the power loom, weaving, too, came to be more and more exclusively work for women; and when the women hand weavers became power-loom weavers in the mills, they were only following there another occupation that had been their own in the home.

It is, of course, an entirely different question that women's labor became enormously more profitable after the establishment

<sup>2</sup> See this *Journal*, Vol. XIV, pp. 461-501.

of the factory system, and this question will be considered in connection with women's wages. It is desired here only to emphasize two points: (1) that the substitution of factory work for household manufacture did not mean that women "took over men's work;" (2) that women were employed in the earliest mills and have therefore been a part of the factory system since its origin.

The question of whether the proportion of women employed has increased or decreased during the last century requires a comparison of statistics of employment for the early years with those from the last census of manufactures. The early statistics are, however, extremely incomplete. It is impossible to obtain any statement, even approximately accurate, of the absolute number of women employed until the close of the third decade of the nineteenth century. But a failure to obtain the total number of employees does not necessarily mean that it is impossible to find a basis for estimating the percentage which women formed of that total. For if a census gives the relative numbers of men and women operatives for the factories reporting, then even if a great many establishments fail to report and make the totals so incorrect as to be useless, still the percentage of women is likely to be very much the same in the establishments that do not report as in those that do. That is, the percentage which women form of the total number of employees is not likely to change much even with a great change in the totals themselves. It is important to note, too, that so far as errors may exist in the reports sent in, they are likely to be in the direction of an underestimate rather than an overestimate of the number of women; for factories sending in careless returns after the manner of census-taking in the early years, often reported only the "number of employees" without indicating the number of each sex. Such returns would invariably be entered as "men employed" and the percentage of women operatives be made to appear smaller than it really was.

On the basis of very imperfect data, Secretary Gallatin estimated that in 1811, 87 per cent. of all cotton mill operatives

must be women and children;<sup>3</sup> and Trench Coxe in his Report to the Secretary of the Treasury in 1814 used the same percentage. In 1817 a Report of the Committee on Manufactures made the exaggerated estimate that the cotton mills employed 100,000 persons, and that 66 per cent. were women and girls, a more useful classification for our purpose than the earlier "women and children." No other estimate for the whole country was made until 1831, but some records showing the number of operatives in various isolated mills are preserved, and these indicate for the most part a very high percentage of women, ranging from 80 to 90 per cent.<sup>4</sup>

Until 1831, then, we have to depend upon estimates, most of them crude, based upon various official and private documents. They seem to indicate that from 60 to 90 per cent. of the cotton mill employees of the country were women; and, in general, that higher percentages of women employees were found in New England, particularly in Massachusetts, than in other parts of the country.

In 1831, when the convention of the "Friends of Industry" met in New York, a Committee on Cotton was appointed which returned some interesting statistics that were published in the report of the convention proceedings. From that time until 1850

<sup>3</sup> The basis on which this and the following estimates were made, and references, are given in the earlier article above referred to.

<sup>4</sup> The table below is compiled mainly from data given in the earlier article which cites the authorities for all figures except those for Waltham. The figures for Waltham are from an old time-book still in possession of the mill; they show that in 1821 there were 353 employees, 299 women and 54 men—all the overseers were men as well as the painters, machinists, teamsters, card coverers, general laborers and the like. The earlier article also contains notes regarding John Quincy Adams' attempted *Digest of Manufactures*, a census of unsummarized returns.

Date	Place	Per Cent. Women Operatives
1818.....	Lancaster	88
1821.....	Waltham	85
1822 (probably).....	Fishkill	83
1825.....	Lancaster	83
1827.....	New Market	90
1827.....	Lowell	90
1833.....	Lancaster	85

no data regarding the number of men and women operatives for the country as a whole have been found; but from 1850 to the present time, the federal census furnishes statistics which can be used as the basis of a fairly reliable estimate. For convenience, these data from the census, with the two most useful of the earlier estimates, have been incorporated in the following table. In order to show not only the change in the proportion of men and women employed, but the relative importance of the cotton industry at different periods as an occupation for either men or women, the number of employees out of every ten thousand persons in the population over ten years of age, was also computed.

TABLE I

## STATISTICS OF EMPLOYMENT FOR THE AMERICAN COTTON INDUSTRY IN THE LAST CENTURY

DATE	NUMBER OF EMPLOYEES		NUMBER COTTON MILL EMPLOYEES OUT OF EVERY 10,000 IN POPULATION OVER TEN YEARS OF AGE		PERCENTAGE WOMEN FORMED OF ALL EMPLOYEES
	Men	Women	Men	Women	
1811 <sup>1</sup> .....	500*	3,500*	..	..	..
1816 <sup>2</sup> .....	34,000*	66,000*	..	..	..
1831 <sup>3</sup> .....	18,538	38,937	53	111	68
1850 <sup>4</sup> .....	33,150	59,136	39	74	64
1860 <sup>5</sup> .....	46,859	75,169	41	69	62
1870 <sup>6</sup> .....	54,931	81,337	38	58	60
1880.....	75,081	99,579	40	55	57
1890.....	100,319	118,557	41	51	54
1900.....	154,042	148,219	52	52	49
1905.....	166,284	149,590	..	..	47

\* Estimates only.

<sup>1</sup> From Secretary Gallatin's "Report on Manufactures," *American State Papers, Finance*, II, 427.

<sup>2</sup> From "Report of the Committee on Commerce and Manufactures," *ibid.*, 82.

<sup>3</sup> From "Report of the Committee on Cotton," *Address and Proceedings of the Convention of the Friends of Industry at New York* (1831), p. 112.

<sup>4</sup> Statistics from *Seventh Federal Census, Manufactures*.

<sup>5</sup> Statistics from *Eighth Federal Census, Manufactures*.

<sup>6</sup> From 1870-1905. Statistics from Federal Census of Manufactures, with the number of children eliminated. For the method used in obtaining these statistics, see Note A, at close of the article.

To accompany these statistics for the country as a whole, a table has been prepared from data showing the number of employees for each decade since 1831 for Massachusetts, which has been throughout the whole period the most important cotton-manufacturing state. A study of statistics for the state where

the industry has the longest history and where it is most concentrated is, in some respects, more illuminating for a historical study of this kind than statistics for the country at large.

TABLE II  
STATISTICS OF EMPLOYMENT IN THE COTTON INDUSTRY—MASSACHUSETTS

DATE	NUMBER OF EMPLOYEES		PERCENTAGE WOMEN
	Men	Women	
1831 <sup>1</sup> .....	2,665	10,678	80
1837.....	4,997	14,757	75
1845.....	6,303	14,407	70
1855 <sup>2</sup> .....	.....	.....	..
1865.....	9,102	15,024	62
1875.....	24,814	35,362	59
1885.....	27,933	33,099	55
1895 <sup>3</sup> .....	41,184	41,925	50
1905.....	46,186	41,847	48

<sup>1</sup> Data for 1831 from the "Report of the Committee on Cotton," *Convention of Friends of Industry at New York* (1831), p. 112. Other data are from the State Industrial Census from decade to decade until 1905—the 1905 industrial census is not yet available and statistics for that year are from the *United States (1905) Census of Manufactures*, children eliminated as in the former table.

<sup>2</sup> The census taken in 1855 does not furnish these data.

<sup>3</sup> An enumeration taken on the day when the greatest number of operatives were employed counted more men than women, i. e., men, 43,705, women, 43,247—women forming only 40 per cent. of the total.—*Massachusetts State Census of Manufactures* (1895), p. 537.

*Women driven out of the cotton mills by men.*—These tables point to some interesting conclusions:

1. That for three-quarters of a century, the period for which data for a comparison are available, the proportion of men in the cotton mills has been steadily increasing while the proportion of women has been as steadily decreasing. In this, the most important women's industry, the women are being slowly displaced by men. Women formed, roughly speaking, from two-thirds to three-fourths, and in some districts as high as nine-tenths, of the total number of operatives in the first half of the century; but this proportion has been declining until, in the twentieth century, the men outnumber the women.

This relatively greater increase in the proportion of men has, moreover, been officially recognized for some years; but the public mind is firmly convinced that the presence of women in industrial occupations means that "the men are being driven out," and this popular misconception maintains its hold, evidence

to the contrary notwithstanding. Public attention is, therefore, frequently enough challenged by a repetition of the census dictum that "the proportion of women employed in manufactures is increasing more rapidly than that of men and children;"<sup>5</sup> but statements of the census with regard to industries in which women are being displaced by men are overlooked. It is important, therefore, to note that the census emphatically states that the proportion of women has been declining in the cotton manufacture, an industry which has always employed more women than any other in the country. Thus, the *Twelfth Census of Manufactures* (1900), after discussing various statistics relating to the cotton industry, pointed out that one important fact resulting from their examination was "that the tendency is more and more to the employment of men."<sup>6</sup>

The recent *1905 Census of Manufactures* calls attention to the fact that,

without any concert of action—perhaps unconsciously to the general body of manufacturers—there is a slow but steady displacement of women by men. In the New England states in twenty-five years the proportion of women employed has dropped from 49.7 per cent. to 45 per cent.; that of men has risen from 36.2 per cent. to 49 per cent.<sup>7</sup>

Had a longer period been selected for a comparison, these differences would have been even more marked.

2. *The cotton mills a declining industry for women.*—The cotton manufacture has become, what may be called a "declining industry" for women, and by declining industry is meant one which now employs a relatively smaller proportion of the total number of women in the country than it did formerly. It is

<sup>5</sup> *Twelfth Census, Manufactures*, I, cxxvi.

<sup>6</sup> *Twelfth Census, Manufactures*, III, p. 32.

<sup>7</sup> *Census Bulletin*, No. 74. "Textiles," p. 40. And see also the *Census of Manufactures for 1905* in which the following interesting comment is made: "The ratio of the number of men employed [in the cotton industry] to the total number of wage-earners has been constantly increasing since 1870. The increase in this ratio, amounting to 15 per cent., was made largely at the expense of the women wage-earners, whose ratio has decreased 10.8 per cent. during the 35 years. . . . In the New England and southern states the decrease in the proportion of women was offset by an increase in the proportion of men, indicating that men are displacing women in the industry." Vol. I, p. lxxxii.

established that the men have not only gained numerically from the expansion of the industry, but they have gained at the expense of the women. But since this has been such a rapidly expanding industry, it would not necessarily follow that because women formed a smaller proportion of all employed, work in the cotton mills had become a relatively less important occupation for women. Table I would seem, however, to indicate that this has been the case. While in 1831 about one hundred out of every ten thousand women over ten years of age, and in 1850 about seventy out of the same number, worked in the cotton mills, when the last census was taken but fifty women were so employed.<sup>8</sup> It will appear in the section dealing with conditions of life and work, that a marked change in the employment of women began to be noted toward the close of the decade 1840-50, and it is probable that the decline has been constant since that time. Percentage increases for each decade since 1850 in the number of cotton-mill operatives and in the population have also been computed and are given in the table below.

TABLE III

PERCENTAGE INCREASES FOR EACH DECADE FROM 1850 TO 1900 IN THE NUMBER OF COTTON-MILL EMPLOYEES AND IN THE POPULATION OVER TEN YEARS<sup>1</sup>

DECade	WOMEN		MEN	
	Cotton Mill Operatives Per cent. increase	Population over Ten Years Per cent. increase	Cotton Mill Operatives Per cent. increase	Population over Ten Years Per cent. increase
1850-60.....	27	37	41	37
1860-70.....	8	27	15	24
1870-80.....	22	29	39	31
1880-90.....	19	28	34	30
1890-1900.....	25	22	54	22

<sup>1</sup> Percentages computed from statistics of employment in Table I and statistics of population from Federal Census.

It is clear from this table that the rate of increase in the number of women cotton operatives has been less than the rate of increase in the female population over ten years of age until the last decade, when the statistics seem to point to a slightly greater

<sup>8</sup> Round numbers, instead of those indicated in the table, are purposely used because it is desired to emphasize the fact that absolute accuracy cannot be obtained from such data as exists.

increase. Even during the last decade it should be noted that the rate of increase is 54 per cent. for men operatives and but 25 per cent. for women operatives, while the male and female population increased at the same rate.

*Explanation of the displacement of women by men.*—But census statistics, although they seem to point unmistakably to a decline in the relative importance of the woman operative, are not relied on as final evidence on this point. The census data, when carefully examined,<sup>9</sup> are seen to be in many respects faulty and unsatisfactory for purposes of comparison over a long term of years. They do not, therefore, furnish any exact statistical expression of the decrease in the proportion of women employees; and, indeed, it must be recognized that no accurate percentage measure of this change can ever be obtained. But these data are, with all their imperfections, of very great interest and significance; and they have been used because they are sufficiently trustworthy to indicate a general tendency, and the tendency to which they point unmistakably is the growing preponderance of men in the cotton mills.

But a study of industrial history is as important as a study of statistics in attempting to understand a tendency of this kind and it is of great significance, therefore, that the facts in the history of the cotton industry in this country confirm the evidence of the statistical tables by showing the economic causes which have produced the changes which are indicated by the tables.

In general it may be said that our industrial history gives us two important reasons for the displacement of the women operatives by men. The first is the change in the available labor supply—the increase in the number of men wanting work as a result of immigration, and the decrease in the relative number of women desiring work in the mills, due to the widening of the field of employment for educated women; the second is the fact that in the progress of mechanical invention, cotton machinery has tended constantly to become heavier and to be operated

<sup>9</sup> See Note A at the close of this article which discusses the census statistics in detail.

at an increased speed, demanding, therefore, greater strength and more nervous energy on the part of the employee.

The first is the more important reason, for if male labor had remained as scarce as it was in the first twenty-five years during which our mills were operated, the machinery would, of necessity, have been adapted to the employment of women. But the men who are in the cotton mills today are almost exclusively of the immigrant class—either foreign born or of foreign parentage—a class that scarcely existed in the first quarter of the nineteenth century, when women first followed their work from the home to the mill. The two chief occupations in cotton manufacturing are spinning and weaving. The skilled operatives who do this work form slightly more than one-half of all the cotton-mill employees. In both the spinning- and weaving-rooms the number of men has been increasing. The mule-spinners are the most skilled group of operatives employed today, and they are almost all men. Moreover, a very considerable number of frame-spinners today are men. The following table, based on the returns of the 1905 *Census of Manufactures*, shows to what extent this occupation has passed into the hands of men.

COTTON MILL "SPINNERS" IN 1905<sup>1</sup>

	Frame-Spinners	Mule-Spinners	Total
Men.....	10,709	4,866 <sup>2</sup>	15,575
Women.....	25,701	.....	25,701
Children.....	19,078	.....	19,078
	55,488	4,866 <sup>2</sup>	60,354

<sup>1</sup> *Census Bulletin*, No. 74 (Textiles), p. 40.

<sup>2</sup> This is not exact, as the census gives only the total number of mule-spinners, without indicating the sex. Since the comment is, "They are almost exclusively men," it has seemed reasonable to assume that the number of women is so small as to be negligible (*ibid.*, p. 40).

There are now, then, approximately fifteen thousand men employed in the cotton mills at spinning, the historic occupation of women in the home, and the occupation which in the early days of the machine system was equally their own in the factory. Mule-spinning is awkward work for women because their movements in following the mule are so much impeded by their skirts and the scarcity of male labor in this country was probably one reason

why mule-spinning came slowly into use. The mule was introduced in Rhode Island about 1817, but it was not adopted in Lowell nor in Massachusetts generally, until much later, and as late as 1840 was little used.<sup>10</sup> Henry Carey, writing in the thirties, said the mule was not used in any of the Lowell factories, "and the consequence is that female labor here takes the place of male labor in England."<sup>11</sup> There is reason to believe that attempts were made to employ women as tenders when the mules were being first adopted in this country, but it was found to be more suitable work for men.<sup>12</sup> Frame-spinning was entirely a woman's occupation at that time, but as the above data indicate, it is now shared with men.

Weaving was not so exclusively women's work before the introduction of machinery. But after the fly-shuttle had come into use and the "spinning mills" had greatly increased the demand for weavers, large numbers of women were employed in weaving, not only for their households but for factories<sup>13</sup> and local dealers, and the sign "weaving given out" was common over shops at this time. An English traveler in 1818 noted the

<sup>10</sup> Batchelder, *Introduction and Early Progress of the Cotton Manufacture in the United States* (Boston, 1863), p. 73. See also the statement of James Montgomery, *The Cotton Manufacture of the United States of America* (Glasgow, 1840), p. 69, "in neither (Waltham nor Lowell) nor in any of the mills that followed their system, was mule-spinning introduced until after 1830."

<sup>11</sup> H. C. Carey, *Essay on the Rate of Wages* (Philadelphia, 1835), p. 75.

<sup>12</sup> An old Waltham operative who tells of seeing mule-spinning for the first time in the early forties, remembers a woman with girl piecers who was working in the mule-room at Lawrence. Later the same woman with her girls came to Waltham when mules were introduced there, but she was obliged to leave. "The men made unpleasant remarks and it was too hard for her being the only woman!" An old illustration in White's *Memoir of Samuel Slater* (2d ed., Philadelphia, 1836), p. 291, would seem to indicate that at one time women may occasionally have been mule-spinners, and undoubtedly they are still, but it is a very rare exception. That it is a highly skilled occupation would be another reason why few women have ever followed it.

<sup>13</sup> The "Weavers' Book," a manuscript volume in the collection of *Poignaud and Plant Papers* in the town library in Lancaster, Massachusetts, which contains the record of the yarn taken, cloth returned, and payments made to the persons who wove in their own homes for the Lancaster cotton mills, contains the names of a large number of women.

large number of "female weavers" in New England<sup>14</sup> and was astonished at their independence in dealing with their employers. With the introduction of the power loom, weaving became the most profitable occupation for women. An old wages book for the year 1821 is still preserved in the Waltham mills and it shows that all of the 138 weavers were women, although the six overseers and assistant overseers were men. The first power-loom weaving at Lowell was done by a woman who was employed by the Merrimac Corporation to instruct girls in weaving;<sup>15</sup> and in Fall River, when three of the new looms were started in 1817, all of the weavers were women or girls. One of the latter was Hannah Borden, a daughter of a large stockholder in Fall River's first cotton mill, and the best weaver of her day.<sup>16</sup> In Henry Carey's *Essay on Wages*, written in 1835, power-loom weaving is discussed as a woman's occupation and from James Montgomery's account of the industry,<sup>17</sup> written a few years later, it seems clear girls were the only weavers. Some of the oldest employees in the New England mills today say they can remember when weaving was so universally considered women's

<sup>14</sup> "Some of them," he said, "who have no other means of support except service (which is unpopular in America) lodge with farmers, and give half the produce of their labor for their board and lodging."—Henry Bradshaw Fearon, *Sketches of America* (London, 1818), p. 101.

<sup>15</sup> *Contributions to Old Residents' Historical Association*, Vol. VI, p. 71. This first weaver was Deborah Skinner, who, as the old time books show, had been the best weaver at Waltham before she went to Lowell.

<sup>16</sup> Hannah Borden is one of the most interesting examples of the remarkable women who worked in our cotton mills three-quarters of a century ago. She learned to weave on the hand loom when she was eight years old, and at fourteen, when she went into the mill to work, she was an excellent weaver. There she ran the looms, and wove thirty yards of cloth a day, working from five in the morning to seven in the evening. The weaving room in which she worked was rough and unplastered, cold as a barn and heated by one small stove. Part of the time she did "custom weaving"—running only one loom, with extra care, so that a finer cloth was produced; for this, of course, she received extra pay. The struggle that this energetic young daughter of one of the early mill owners carried on against the company store system will be noted later (in Part II, dealing with conditions of life and work). Other details of her life are given by Miss S. H. Wixon in an address on "Hannah Borden's Work," *Fall River Evening News*, May 28, 1903.

<sup>17</sup> *Op. cit.*, p. 107.

work that a "man weaver" was held up to public ridicule for holding a "woman's job." As late as 1860, in the discussion of the *New England Cotton Manufacturers' Association*, a weaver is uniformly referred to as "she."<sup>18</sup>

But the number of looms which a single operative can tend has constantly increased, and the tendency has been all along to a higher and higher rate of speed. In the decade 1830-40, a girl tended two looms, running 108 picks a minute, and as late as 1871 four looms at 135 picks a minute.<sup>19</sup> Today a single operative may tend twenty or more; and, in the words of the *Twelfth Census*, these "improved high-speed and automatic looms, many of which are put under the charge of one weaver, can be operated most efficiently by men."<sup>20</sup> This is indicated by the following statistics, taken from the *1905 Census of Manufactures* showing the number of men and women employed as weavers. Again, data are given for Massachusetts separately, since that is the state in which the history of the industry can be most accurately traced.

#### COTTON MILL WEAVERS, 1905<sup>1</sup>

Class of Employees	United States	State of Massachusetts
Men over sixteen.....	48,248	14,552
Women over sixteen.....	48,325	16,473
Children under sixteen.....	2,238	531

<sup>1</sup> Data from *1905 Census of Manufactures*, III, p. 50.

The census in commenting upon the data given above says:

There are no earlier returns with which to compare these numbers. But it is well known to those conversant with the industry that only a few years ago the weaving of cotton goods was regarded as peculiarly the work of women. The introduction of improved and fast looms has led more and more

<sup>18</sup> *Reports of New England Cotton Manufacturers' Association*, October 21, 1860, pp. 28, 29. An interesting old employee of the Waltham mills, a man who has worked continuously there since the forties, says he cannot remember "men weavers" until about the time of the Civil War. He believes that the first men to work in the weaving rooms in Waltham were immigrant English weavers.

<sup>19</sup> Data from *1905 Census of Manufactures*, III, p. 50.

<sup>20</sup> *Twelfth Census, Manufactures*, III, p. 32.

to the employment of men as weavers. The tendency is so marked that the next enumeration should show the men in a majority.<sup>21</sup>

It is more difficult and perhaps less instructive to follow changes in the minor occupations, but as another striking illustration of the substitution of men for women operatives, the history of the process of dressing should be noticed. In the year 1866 a new machine for sizing yarn, known as the Slasher, was imported. Before this time the work had been done by the dressing machines worked by women. The slasher was found to be successful as a means of saving labor and was rapidly installed. When the New England Cotton Manufacturers' Association met in 1869, the new machine was discussed and the question was raised by one member, "Do ladies or gentlemen tend the slashers?" The answer was, "My impression is that we can use girls, in part, but we have not tried them."<sup>22</sup> But the work proved to be physically exhausting and the substitution of men slasher-tenders for the women who had worked at the dressing machines was inevitable. "Dressing" had been one of the best paid women's occupations in the mills, but by 1870 it had passed entirely into the hands of men.

There are, then, changes in the technique of the industry as well as changes affecting the available labor supply to explain the tendency to which the census statistics point. To quote the census again:

The number of places in which women can profitably be employed in a cotton mill in preference to men, or on an equality with them, steadily decreases as the speed of the machinery increases, and as the requirement that one hand shall tend a greater number of machines is extended.<sup>23</sup>

The facts of our economic history, that interesting and moving background against which our census statistics stand out as guide-

<sup>21</sup> *Ibid.*, p. 33.

<sup>22</sup> *Transactions New England Cotton Manufacturers' Association*, 1869, p. 14. See also Robinson, *Loom and Spindle*, p. 99, in which Mrs. Robinson reports as one of the changes she found in going back to the mill where she worked, that the room in which the girls of her day had tended the dressing machines was filled with men, who were of course operating "slashers."

<sup>23</sup> *Census Bulletin*, No. 74, "Textiles" (1905), pp. 39, 40.

posts more or less reliable, supplement and support the conclusions drawn from the tables in pointing to a slow but steady pressure driving the women from the mills. Further evidence on the same point will appear in a later section (Part II) relating to changes in the character of the operatives and conditions of life and work.

#### NOTE A—CONCERNING THE CENSUS STATISTICS OF THE EMPLOYMENT OF WOMEN IN THE COTTON MILLS

Beginning with the *Seventh Census* (1850), statistics showing the number of women employed in our manufacturing industries have been published for each succeeding decade. But so many difficulties arise in attempting to make comparisons from one census to another that it has seemed worth while to make a more detailed statement regarding these statistics than could properly be made within the limits of the article.

It is necessary to explain, at the outset, that data regarding the number of persons employed in manufacturing pursuits are collected through two different schedules: first, in taking the population census, the occupation of every person over ten years of age is reported and the results tabulated from the population schedules and published under the head of "Occupations" in a special section or volume; second, another schedule which is used in collecting information regarding our manufacturing industries reports the number of persons employed in them. These two sets of returns present many seeming discrepancies which result from the different methods of collection. In the *Twelfth Census*, for example, tables in the "Occupations" volume for *Manufacturing and Mechanical Pursuits* showed 120,788 women over ten years of age employed in the cotton mills, while the *Census of Manufactures* reported 126,882 women over sixteen years of age in the same industry. In general, the statistics in the "Occupations" tables should represent the maximum number of persons employed, since the data for these tables are, as has been said, from the population schedules and in taking the population census, every one is asked for his occupation, trade or profession, and many unemployed are inevitably reported as having occupations. The numbers in the "occupations" tables would therefore, in most cases, be larger than those in the "manufactures" tables, which report only the average number of persons actually employed during the year. (See on this point General Walker's note accompanying the tables in the "Industry and Wealth" volume of the *Ninth Census*, p. 801.)

But there are two reasons which seem to make the manufactures returns more reliable than those in the occupations tables in an attempt to show the change in the proportion of men and women employed as cotton-mill operatives:

1. The manufactures returns include persons in any occupation in the

cotton mills, while the occupations returns report a great many cotton-mill employees whose occupation is not peculiar to the mills, e. g., painters, carpenters, machinists, general laborers, in other occupational groups. That is, in the occupations returns, a machinist employed in the cotton mills would be returned as a machinist, in the manufactures schedule he would be a cotton-mill employee. The manufactures statistics, therefore, represent more complete returns of the number of persons actually employed in the cotton manufacture. Moreover, in the occupations returns of the population census, many occupations are vaguely reported so that in the 1900 occupations tables a large group called "Textiles not otherwise specified," contained 78,312 operatives, many of whom must have been cotton-mill employees.

2. The second reason which makes the manufactures tables superior for the purpose in hand, is a more general one. It is well known that so far as the employment of women and children is concerned, the occupations tables are less complete than the manufactures tables. General Walker, in discussing this point in 1870 (*Ninth Census, "Wealth and Industry,"* p. 375, note) said: "The reasons why the occupations tables may be taken as substantially exact as they respect the adult male labor of the country, but not as they respect the employment of women and children, are plain and simple. It is taken for granted that every man has an occupation, and the examination of tens of thousands of pages of schedules returned in the present census has satisfied the superintendent that only in rare cases, too inconsiderable to be taken into account in such a discussion, have assistant marshals failed to ask and obtain the occupation of men, or boys old enough to work with effect. It is precisely the other way with women and young children. The assumption is, as the fact generally is, that they are not engaged in remunerative employments. Those who are so engaged constitute the exception, and it follows from a plain principle of human nature, that assistant marshals will not infrequently forget or neglect to ask the question." And again in the same volume, General Walker makes the further comment (p. 375): "The Tables of Occupations have been assumed to be authentic and to present the true standard by which to criticize the statistics of manufactures; and, in respect to the adult male labor of the country, they are substantially complete and exact. But in respect to the number of women and children employed in manufacturing industry, particularly in large mills and factories, the return of occupations is, for reasons to which attention was called in the remark pre-facing the occupations tables, decidedly deficient."

Owing, therefore, to the fact that the *Census of Manufactures* is in general more complete so far as the employment of women is concerned, and that, for the cotton industry, the *Census of Manufactures* is more complete for both men and women, the statistics from the manufactures returns would seem to be the more desirable for our purpose.

Another point of importance is that the manufactures schedules for each census (beginning with 1850) report both the number of men and women employed; while the occupations returns for 1850 report only the occupations of men and those of 1860 only the total number of persons engaged in various occupations without distinguishing the sex of those employed. We have then the number of women operatives reported from the manufactures returns for each decade from 1850 to 1900; from the occupations returns only from 1870 to 1900.

When an attempt is made, however, to use these statistics of manufactures, it is discovered that the same schedules were not used for each census and that the returns therefore are not fairly comparable. When the census of 1850 was taken, schedule No. 5, relating to the products of industry, called for "the average number of male and female hands;" and this same schedule was used in 1860. No specification was made as to age, so it may be assumed that the terms "male and female hands" included boys and girls.<sup>1</sup> But in 1870, the schedule was so arranged as to call for the number of employees under a new classification—men over sixteen, women over fifteen, and children; instead of the "average number of male and female hands" that had formerly been required. The classification of 1870 has been used in each succeeding census except that in 1900 "women over sixteen" was substituted for "women over fifteen." The result is that the data we have to compare are statistics for 1850-60 of the number of men and women employed; and for 1870-1900 the number of men over sixteen, and women over fifteen (or sixteen).

To summarize briefly this information as to available statistics: for 1850 and 1860 we have the number of women reported only from the manufactures schedules, and the age of the women is not given; for 1870-1900 we have the number of women reported both from the population (occupations) schedules and from the manufactures schedules, the former giving the number of men and women over ten and the manufactures returns having been changed in 1870 to give the number of men and women over

<sup>1</sup> See Carroll D. Wright, *History and Growth of the Census*, pp. 45, 46, 50, 51, for the early schedules. Professor Levasseur in his *L'ouvrier américain*, Vol. I, p. 390, has designated these statistics for 1850 and 1860 as "men over fifteen" and "women over fifteen," but his so designating them seems to be quite unwarranted. Curiously enough, the population schedule during these years did call only for the occupations of "men over fifteen," and in 1860 "men and women over fifteen," and it would seem as if Professor Levasseur had confused the schedules used for manufactures and occupations during these years. In the *Manufactures Census of 1870* (volume on *Industry and Wealth*, pp. 392, 393 f.) the returns for 1850 and 1860 are carefully distinguished as to this point from those for 1870; the latter are marked "men over fifteen" and "women over fifteen," the former only "men" and "women."

sixteen and the number of children (boys and girls not distinguished) under sixteen.

Three possible methods of using these statistics suggest themselves:

1. The manufactures returns for 1850 and 1860 may be compared with those for 1870-1900 (Table A below). This would be the logical thing to do if the manufactures schedules had been the same throughout the period; but it has been pointed out that the schedules were not the same and the result is an attempt to compare the number of men and women for 1850-60 with the number of men and women over sixteen for the later decades. However, since our concern is rather with the proportion of women and men employed, this is not so serious a drawback as if we were using absolute totals.

TABLE A. OPERATIVES IN COTTON INDUSTRY, 1850-1900  
DATA FOR 1850-1900 FROM CENSUS OF "MANUFACTURES"

	Men: after 1870 "Men over 16"	Women: after 1870 "Women over 16"	Children under 16* No Data for 1850-60	Percentage Women of All Employees
1850.....	33,150	59,136	not given	64
1860.....	46,859	75,169	not given	62
1870.....	42,790	69,637	22,942	51†
1880.....	61,760	84,558	28,341	49†
1890.....	88,837	106,607	23,432	49†
1900.....	135,721	126,882	40,258	42†

\* As pointed out before, "women above fifteen" is the correct designation until 1900.

† The percentage which women formed of the total number of men and women above sixteen, instead of the total number of employees, if substituted for the above percentages 1870-1900, would give the following result:

1850	1860	1870	1880	1890	1900
64	62	62	58	55	48

2. Another table has been prepared comparing the manufactures returns for 1850-60 with the occupations returns for 1870-1900 (Table B below).

TABLE B. OPERATIVES IN COTTON INDUSTRY 1850-1900  
DATA FOR 1850 AND 1860 FROM CENSUS OF "MANUFACTURES" FOR 1870-1900 FROM  
"OCCUPATIONS" RETURNS OF CENSUS OF POPULATION

	NUMBER OF EMPLOYEES		PERCENTAGE WHICH WOMEN FORMED OF ALL EMPLOYEES
	Men	Women	
1850.....	33,150	59,136	64
1860.....	46,850	75,169	62
1870.....	47,208	64,398	58
1880.....	78,292	91,479	54
1890.....	80,177	92,965	52
1900.....	125,788	120,603	49

In this table, since the occupations returns for 1870-1900, like the manufactures returns for 1850-60 used the classification into two groups instead of three, the terms "men" and "women" are correct designations throughout the period. There is, however, the objection to any comparison of manufactures and occupations returns that there are differences in the method of obtaining them.

3. A third method—a method of overcoming the difficulty pointed out in regard to Table A, was adopted in preparing Table I, used in the article (*supra*, p. 607). What was needed for Table A was a reclassification to make the threefold division of 1870-1900 into "men, women, and children" correspond with the twofold division of 1850-60 into "men and women." To do this, it is necessary to ascertain in what proportion "children" in column three are divided into girls and boys. This is, unfortunately, not reported in the manufactures census but in turning to the occupations returns in which "girls" and "boys" are reported separately, it is possible to obtain there the percentage of girls in the total number of children. For example, the occupations tables for 1900 report 21,005 boys and 23,442 girls in the industry, and according to these data, therefore, 53 per cent. of the children in the cotton mills in 1900 were girls. Therefore, using only this percentage and not the occupations totals, 53 per cent. of the number of children employed in 1900 as given in Table A were added to the column "women" and the remaining 47 per cent. to the "men" column. For each of the other census years, 1870, 1880, 1890, the proportion of girls to boys was ascertained in the same way from the occupations tables for each census year, and the resulting percentages of the total number of children given in Table A were added to the "men" and "women" columns. The result, Table C below, was used in the text of the article, for it is believed that the statistics in this table furnish a more correct basis of comparison than those in Table A or Table B.

TABLE C. OPERATIVES IN THE COTTON INDUSTRY, 1850-1900

	Men	Women	Percentage Women of All Em- ployees
1850.....	33,150	59,136	64
1860.....	46,850	75,169	62
1870.....	54,031	81,337	60
1880.....	75,081	99,579	57
1890.....	100,319	118,557	54
1900.....	154,642	148,219	49

It is of the utmost importance, however, to note that all of these tables point to the same conclusion, viz., a constant decrease in the proportion of women operatives in the last half-century. It has already been

pointed out that in this, as in most attempts to make comparisons over a long period of years, statistics that are accurately comparable are not available. The census frankly says, in discussing the data for employees and wages, "It is obvious that comparisons between the results of any of the censuses under these heads cannot be exact." (*1900 Census Manufactures*, I, p. lxii.)

This statement has seemed necessary lest there be any doubt as to the value placed upon these statistics; for while they are believed to be of very great interest and significance, it has not been claimed that any table constructed from them can furnish an accurate measure of the change in the number of women operatives. The essential fact is that, whichever table is used, a decrease in the proportion of women employees is indicated. Beyond any question this proportion has fallen from something greater than two-thirds in the first quarter of the century to something slightly less than one-half at the close of the century.

An attempt has been made, however, to study the subject not merely as a statistical problem, but as a chapter in our economic history in order that such material as the census offers may be correctly interpreted and understood. The conclusions drawn, therefore, do not rest alone on census statistics, but on statistics explained and confirmed by the facts in our industrial history.

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